

REISSUE PATENT APPLICATION TRANSMITTAL

Address to:

Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

Attorney Docket No.

1046.1100RE/PIK

First Named Inventor

Ryota AKIYAMA et al.

Original Patent Number

5,812,661

Original Patent Issue Date

September 22, 1998

Express Mail Label No.

PTO
09/654929
U.S.
J0511

09/05/00

APPLICATION FOR REISSUE OF:

(check applicable box)

☒ Utility Patent ☐ Design Patent ☐ Plant Patent

APPLICATION ELEMENTS

1. ☒ Fee Transmittal Form (PTO/SB/56)
2. ☒ Specification and Claims (which includes a total of 22 claims)
3. ☒ Drawing(s) (proposed amendments, if appropriate)
4. ☒ Reissue Oath/Declaration (original or copy) (37 CFR 1.175)(PTO/SB/51 or 52)
5. Original U.S. Patent
☒ Offer to Surrender Original Patent (37 CFR 1.178)(PTO/SB/53 or 54)
or
☐ Ribboned Original Patent Grant ☐ Affidavit/Declaration of Loss (PTO/SB/55)
6. Original U.S. Patent currently assigned?
☒ Yes ☐ No (If Yes, check applicable box(es), below)
☒ Written Consent of all Assignees (PTO/SB/53 or 54)
☒ 37 CFR 3.73(b) Statement ☐ Power of Attorney

ACCOMPANYING APPLICATION PARTS

7. ☐ Transfer drawings from Patent File
8. ☐ Foreign Priority Claim (35 USC 119) (if application)
9. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
10. ☐ English Translation of Reissue Oath/Declaration (if applicable)
11. ☐ Small Entity Statement(s) ☐ Statement filed in prior application, status still proper and desired.
12. ☐ Preliminary Amendment
13. ☒ Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
14. ☐ Other:

15. CORRESPONDENCE ADDRESS



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PATENT TRADEMARK OFFICE

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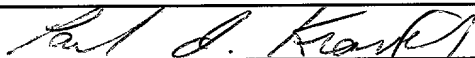
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|--|--|---------------------|--|---|--|
| REISSUE APPLICATION FEE TRANSMITTAL | | Attorney Docket No. | | 1046.1100RE/PIK | |
| | | Application Number | | Reissue of Patent No. 5,812,361 | |
| | | Filing Date | | HEREWITH | |
| AMOUNT ENCLOSED | | \$ 1,194.00 | | First Named Inventor Ryota AKIYAMA et al. | |

| FEE CALCULATION (fees effective 10/01/98) | | | | | |
|---|--------------------|-------------------------------------|------------------|-------------|--------------|
| Claims in Patent | For | Number Filed in Reissue Application | Number Extra | Rate | Calculations |
| (A) 7 | TOTAL CLAIMS | (B) 22 = | ⁽¹⁾ 2 | X \$18.00 = | 36.00 |
| (C) 4 | INDEPENDENT CLAIMS | (D) 10 = | ⁽²⁾ 6 | X \$78.00 = | 468.00 |
| BASIC FILING FEE | | | | | 690.00 |
| Total of above Calculations = | | | | | \$ 1,194.00 |
| Reduction by 50% for filing by small entity (37 CFR 1.9, 1.27 & 1.28) | | | | | - |
| TOTAL FILING FEE = | | | | | \$ 1,194.00 |
| (1) If the entry in (A) is greater than 20, use (B)-(A); if (A) is 20 or less, use (B)-20. (2) If the entry in (D) is less than the entry in (C), use "0". | | | | | |

| METHOD OF PAYMENT | |
|---|--|
| <input checked="" type="checkbox"/> Check enclosed as payment. <input type="checkbox"/> Charge "TOTAL FILING FEE" to the Deposit Account No., below. <input type="checkbox"/> No payment is enclosed and no charges to the Deposit Account are authorized at this time. | |

| GENERAL AUTHORIZATION | |
|---|--------------------|
| <input checked="" type="checkbox"/> If the above-noted "AMOUNT ENCLOSED" is not correct, the Commissioner is hereby authorized to credit any overpayment or charge any additional fees necessary to: | |
| Deposit Account No. | 19-3935 |
| Deposit Account Name | STAAS & HALSEY LLP |
| <input checked="" type="checkbox"/> The Commissioner is also authorized to credit any overpayments or charge any additional fees required under 37 CFR 1.16 (filing fees) or 37 CFR 1.17 (processing fees) during the prosecution of this application, including any related application(s) claiming benefit hereof pursuant to 35 USC § 120 (e.g., continuations/divisionals/CIPs under 37 CFR 1.53(b) and/or continuations/divisionals/CPAs under 37 CFR 1.53(b)) to maintain pendency hereof or of any such related application. | |

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|---|---|----------|-------------------|
| SUBMITTED BY: STAAS & HALSEY LLP | | | |
| Typed Name | Paul I. Kravetz | Reg. No. | 35,230 |
| Signature |  | Date | September 5, 2000 |

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Application of: :
: Ryota AKIYAMA et al. :
: Group Art Unit: Unassigned
Reissue of Patent No.: 5,812,661 :
: Issued: September 22, 1998 : Examiner: Unassigned

For: SOFTWARE REPRODUCTION APPARATUS

**CONSENT OF ASSIGNEE TO FILING OF REISSUE APPLICATION
AND OFFER TO SURRENDER ORIGINAL PATENT**

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Petitioner, Mr. Sadakazu Igeta, represents that I am the General Manager, Patent Division, of the Assignee identified below owning the entire interest in the above-identified patent and am authorized by the Assignee to assent to the filing of the subject application for reissue of the subject U.S. Letters Patent 5,812,661 and to sign on behalf of the Assignee.

CONSENT OF ASSIGNEE AND STATEMENT UNDER 37 CFR §3.73(b)

Fujitsu Limited, presently the assignee of the entire interest including all rights in the above-identified application, having its principal place of business at 1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki-shi, Kanagawa 211-8588, Japan, hereby consents to reissue of U.S. Letters Patent No. 5,812,661. The Assignment to Fujitsu Limited was recorded at Reel 7622, Frames 0756, on August 1, 1995. The evidentiary documents have been reviewed and it is certified that to the best of the assignee's knowledge and belief, title is in the assignee and the undersigned has the authority to act on the behalf of the assignee, Fujitsu Limited.


| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 | 2101 | 2102 | 2103 | 2104 | 2105 | 2106 | 2107 | 2108 | 2109 | 2110 | 2111 | 2112 | 2113 | 2114 | 2115 | 2116 | 2117 | 2118 | 2119 | 2120 | 2121 | 2122 | 2123 | 2124 | 2125 | 2126 | 2127 | 2128 | 2129 | 2130 | 2131 | 2132 | 2133 | 2134 | 2135 | 2136 | 2137 | 2138 | 2139 | 2140 | 2141 | 2142 | 2143 | 2144 | 2145 | 2146 | 2147 | 2148 | 2149 | 2150 | 2151 | 2152 | 2153 | 2154 | 2155 | 2156 | 2157 | 2158 | 2159 | 2160 | 2161 | 2162 | 2163 | 2164 | 2165 | 2166 | 2167 | 2168 | 2169 | 2170 | 2171 | 2172 | 2173 | 2174 | 2175 | 2176 | 2177 | 2178 | 2179 | 2180 | 2181 | 2182 | 2183 | 2184 | 2185 | 2186 | 2187 | 2188 | 2189 | 2190 | 2191 | 2192 | 2193 | 2194 | 2195 | 2196 | 2197 | 2198 | 2199 | 2200 | 2201 | 2202 | 2203 | 2204 | 2205 | 2206 | 2207 | 2208 | 2209 | 2210 | 2211 | 2212 | 2213 | 2214 | 2215 | 2216 | 2217 | 2218 | 2219 | 2220 | 2221 | 2222 | 2223 | 2224 | 2225 | 2226 | 2227 | 2228 | 2229 | 2230 | 2231 | 2232 | 2233 | 2234 | 2235 | 2236 | 2237 | 2238 | 2239 | 2240 | 2241 | 2242 | 2243 | 2244 | 2245 | 2246 | 2247 | 2248 | 2249 | 2250 | 2251 | 2252 | 2253 | 2254 | 2255 | 2256 | 2257 | 2258 | 2259 | 2260 | 2261 | 2262 | 2263 | 2264 | 2265 | 2266 | 2267 | 2268 | 2269 | 2270 | 2271 | 2272 | 2273 | 2274 | 2275 | 2276 | 2277 | 2278 | 2279 | 2280 | 2281 | 2282 | 2283 | 2284 | 2285 | 2286 | 2287 | 2288 | 2289 | 2290 | 2291 | 2292 | 2293 | 2294 | 2295 | 2296 | 2297 | 2298 | 2299 | 2300 | 2301 | 2302 | 2303 | 2304 | 2305 | 2306 | 2307 | 2308 | 2309 | 2310 | 2311 | 2312 | 2313 | 2314 | 2315 | 2316 | 2317 | 2318 | 2319 | 2320 | 2321 | 2322 | 2323 | 2324 | 2325 | 2326 | 2327 | 2328 | 2329 | 2330 | 2331 | 2332 | 2333 | 2334 | 2335 | 2336 | 2337 | 2338 | 2339 | 2340 | 2341 | 2342 | 2343 | 2344 | 2345 | 2346 | 2347 | 2348 | 2349 | 2350 | 2351 | 2352 | 2353 | 2354 | 2355 | 2356 | 2357 | 2358 | 2359 | 2360 | 2361 | 2362 | 2363 | 2364 | 2365 | 2366 | 2367 | 2368 | 2369 | 2370 | 2371 | 2372 | 2373 | 2374 | 2375 | 2376 | 2377 | 2378 | 2379 | 2380 | 2381 | 2382 | 2383 | 2384 | 2385 | 2386 | 2387 | 2388 | 2389 | 2390 | 2391 | 2392 | 2393 | 2394 | 2395 | 2396 | 2397 | 2398 | 2399 | 2400 | 2401 | 2402 | 2403 | 2404 | 2405 | 2406 | 2407 | 2408 | 2409 | 2410 | 2411 | 2412 | 2413 | 2414 | 2415 | 2416 | 2417 | 2418 | 2419 | 2420 | 2421 | 2422 | 2 |
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Pursuant to 37 C.F.R. § 1.178, Fujitsu Limited hereby offers to surrender original U.S. Letters Patent 5,812,661.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: August 23, 2000


Sadakazu Igeta
General Manager
Patent Division
Fujitsu Limited

SOFTWARE REPRODUCTION APPARATUS

BACKGROUND OF THE INVENTION

The present invention relates to a software reproduction apparatus.

The present invention relates to an effective technology applicable for distribution systems for computer programs or software such as copyrighted image materials, etc., especially digitized information software.

As large-scale memory media such as CD-ROM, MO etc., and large-volume, high-speed communications technologies such as B-ISDN, etc., are further developed, it is expected that not only, of course, computer programs that use these means, but also image and sound, will be distributed as digital data.

In other words, copyrighted image analog data that have been supplied in the past in such forms as video tapes are now being stored as digital data in CD-ROM and sold, or such materials are beginning to be distributed within the market as game software through utilizing the interactive (bidirectional) nature of CD-ROM.

Also, the same situation is occurring with communications circuits: such data as the previously mentioned copyrighted image data are now beginning to be placed in the hands of users via communications.

Incidentally, it is extremely easy to copy this type of digital data onto other media. Moreover, since there is no worry that deterioration will occur through the copying of digital information as occurs when analog information is copied, it is possible to duplicate digital information, and there is an extremely high possibility that these types of acts of copying will impair the profits of manufacturers. In other words, it is easy to copy the contents of a CD-ROM with only a rudimentary knowledge of DOS commands, so long as the would-be copier possesses an optical magnetic disk or an optical magnetic disk apparatus, etc., that is capable of large-volume rewrites.

In this way, for the reason that a sufficient security check is impossible, acts of renting these types of digital data media have, in most cases, been prohibited by manufacturers.

However, currently end-users often hesitate to purchase this type of software because the price is too high, or because they don't know if the software will truly match their desired software, or they wait to ascertain whether or not the software is usable on the hardware that they now possess.

In regards to this point, a new software offering system is beginning to be realized wherein multiple software with limited functions are stored on a CD-ROM and sold for a low price, and whereby the end-user pays a fee for desired software on the CD-ROM, and is thereby notified of a code that will remove the functional limitations.

However, the software offering method noted above cannot be said to have sufficiently reflected the special characteristics of the software.

In other words, for the previously mentioned removal of functional limitations, the fee payment in most cases consists of a one-time only, lump-sum payment, and this fee inevitably consists of a high amount. Thus, for example, in those cases where a user only wants to view for a short period a single scene of an image, or when a user wants to use a spreadsheet for only a week, it is difficult to manage fees according to the usage amounts.

In regards to this point, a method was proposed in the Laid-Open Patent No. 19707/1996 whereby the usable price

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amount was registered beforehand on an IC card, and, in the case where billable software is used, the usable price amount on the IC card is registered within the system, and every time an applicable item of software is used, the system deducts the amount from the balance.

Also, a method was proposed by the present applicants in the Laid-Open Patent No. 9687/1995 whereby a rewriteable domain is provided within the memory medium of the CD-ROM, etc., and whereby usage-time data is managed.

SUMMARY OF THE INVENTION

The present invention provides an input switchover means for switching input routes according to the type of data offering format (for example, communications or a medium) provided to the user, a software management means for decoding encrypted software data and for managing monetary charges according to the amount of the software data used, a data conversion section for converting decoded data output from the previously mentioned software management means to output data for presenting to the user, and an output route switchover means for outputting encrypted software data to the previously mentioned software management means, and for outputting non-encrypted software data to the previously mentioned data conversion section.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a theoretical diagram of the present invention.

FIG. 2 is a block diagram showing the configuration of the software reproduction apparatus that is a preferred embodiment of the present invention.

FIGS. 3A-FIG. 3D are explanatory diagrams showing the DES mode of the preferred embodiment.

FIG. 4 is a block diagram showing a detailed configuration of the DES of the preferred embodiment.

FIG. 5 is a chart diagram showing the timing of DES input and output of the preferred embodiment.

FIG. 6 is a conceptual diagram showing an overall image of software usage of the present invention.

FIG. 7 is a main block diagram showing the configuration of the software reproduction apparatus that is a variation of the preferred embodiment.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention, as shown in the conceptual diagram that is FIG. 1, basically provides an input switchover means (53) that switches the input route according to the type of data offering format (here, communications (51) or a medium (52)) provided to the user, a software management means (55) for decoding encrypted software data and for managing monetary charges according to the amount of the software data used, a data conversion section (56) for converting decoded data output from the previously mentioned software management means (55) to output data for presenting to the user, and an output route switchover means (54) for outputting encrypted software data to the previously mentioned software management means (55), and for outputting non-encrypted software data to the previously mentioned data conversion section (56).

Software data is, for example, program, sound, animation, or still image, etc., data, and this software data may be obtained from the route of public-circuit, dedicated communications-circuit, etc., wired/wireless communications (51), or it may be obtained by the method of a

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Software data provided to the user through these means consists of encrypted data and non-encrypted data; encrypted software data is managed by the monetary charges system to be discussed below according to the usage amount (reproduction amount) of that software data.

The data conversion section (56) is, for example, a section for performing expansions of compressed image data, and for controlling the synchronism of image data and sound data, and this data conversion section (56) is connected to an external speaker, a TV monitor, etc.

Within the present invention, the output switchover means (54) is made to, when the software data is encrypted, output that data to the software management means (55), and when the software is not encrypted, to directly output that data to the data conversion section (56). Therefore, with the present invention, both encrypted software and non-encrypted software is uniformly manipulatable.

Next, a specific preferred embodiment will be explained.

FIG. 2 is a functional block diagram that shows the internal configuration of the software reproduction apparatus 105 that is a preferred embodiment of the present invention.

In the diagram, the switchover switch 57 (SW1) may also function as the input interface, and inputs software data from various offering routes, including the communications circuit 51, the CD-ROM 52, etc. Also, within this switchover switch 57 (SW1), it is also possible to rewrite software data through an optical magnetic disk drive apparatus not shown in the diagram to the optical magnetic disk 58. In other words, the switchover switch 57, although abbreviated in the diagram, is comprised of a miscellaneous reception apparatus and an interface circuit for generating interrupt signals when individual signals are received at separate input terminals, and is operated through the control of the host CPU 10.

Placed on the next level after the switchover switch 57 (SW1) arc, as the signal processing means, the reception apparatus 58, the MO modulator device 59, and the CD/MO demodulator device 60. The reception apparatus 58 is an apparatus for converting software data provided as reception signals from the communications circuit 51 into a data format that can be manipulated within the present apparatus; the MO modulator device 59 is a modulation means for performing writing to the optical magnetic disk 58. Also, the CD/MO demodulator device 60 is a device for demodulating read data from the optical magnetic disk 58 or the CD-ROM 52, and demodulation control is accomplished through the control route.

The switchover switch 61 (SW2) is a switch for outputting selectively to each type of error processing means data outputted from the miscellaneous signal processing means

explained previously. Also, in the case where writing to the optical magnetic disk 58 is performed, the switchover switch 61 (SW2) controls the transfer of inverse direction data from the error processing means to the signal processing means.

This switchover switch 61 (SW2), although abbreviated in the diagram, is comprised of a miscellaneous reception apparatus and an interface circuit for generating interrupt signals when individual signals are received at separate input terminals, and is operated through the control of the host CPU 10.

The error processing means is divided into the communications-system error processing section 62, the optical magnetic disk-system error processing section 62 [sic] (62a, 62b), and the magnetic disk/CD-system error processing section 63.

The optical magnetic disk-system error processing section 62 is comprised of an error check code generation section 62a for performing error check processing of data when such data is written to the optical magnetic disk, and an error check code correction section 62b for performing error checks when data is read from the optical magnetic disk.

Furthermore, the magnetic disk/CD-system error processing section 63 can also perform processing such as bit relisting, etc., together with error check code corrections.

In this way, with the present preferred embodiment, error processing corresponding to each offering format is enabled, and only data that has completely undergone error processing is subject to decoding processing and monetary charges processing, both to be discussed below.

Located at the last step of the previously mentioned error processing means is the switchover switch 64 (SW3). This switchover switch 64 (SW3) has the function of controlling routes, either by outputting to the software management section 3 of the next step the software data processed with the previously mentioned signal processing means and the error processing means, or by outputting this data to the switchover switch 65 (SW4) to be discussed below; or it may take output from the previously mentioned error check code correction section 62b and return it to the error check code generation section 62a.

Writing from a CD-ROM to an Optical Magnetic Disk

Here, the sequence of controlling the switchover switch 64 (SW3), and of writing encrypted software data read from the CD-ROM 52 to the optical magnetic disk 58 will be simply explained.

First, data read from the CD-ROM 52 through route switching by the switchover switch 57 (SW1) operated by the host CPU 10 is inputted to the CD/MO demodulator device 60. Data that is demodulated here is sent to the magnetic disk/CD-system error processing section 63 through a route switchover by the switchover switch 61 (SW2). Data that has undergone error check code correction and bit relisting here has added to it an error check code corresponding to the optical magnetic disk sent to the error check code generation section 62a through a route switchover by the switchover switch 64 (SW3). Then, this data, through a route switchover by the switchover switch 61 (SW2), is sent to the MO modulator device 59, where it is transformed into a data format that can be written onto the optical magnetic disk 58, and, through the switchover switch 57 (SW1), the data is then written onto the optical magnetic disk 58.

In this way, data written onto the optical magnetic disk 58 is sent from the switchover switch 57 (SW1) via the CD/MO

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demodulator device 60, the switchover switch 61 (SW2), the optical magnetic disk error processing section 62a [sic], and the switchover switch 64 (SW3), and is inputted to the software management section 3; data that has been decoded here is inputted via the switchover switch 65 (SW4) to the sound-image separation section 66 (DE-MUX), and is output through MPEG 67a, MPEG 67b, etc., externally as image data or sound data. Here, MPEG processing is performed in conformance with "ISO/IEC CD13818' 1-3".

The Configuration of the Software Management Section

The software management section 3 is realized with module architecture, for example, with an IC card (for example, a card format that conforms to PCMCIA), a board, etc., and is chiefly comprised of a DES (Fip's Publication Co.'s 460DATA ENCRYPTION STANDARD NIST) as the decoding section 7 that possesses the input buffer 21 and the output buffer 24.

The previously mentioned DES is made to receive the key data 16 from an external source, and, based on this key data, the DES functions and is made to decode encrypted data. Furthermore, within the present preferred embodiment, the DES possesses a mode identification section 18 (MODE), and this mode identification section 18 has the function of selecting the most appropriate mode from multiple DES modes for the specific data format, etc.

An Explanation of the DES Mode

Next, a representative block of the previously mentioned DES mode will be explained.

FIG. 3A is the ECB base mode, and it is a mode that, within the decoding section 7 (DES), encrypts (or decodes) a 64-bit input data string from the 64-bit key data 16 to a 64-bit output data string.

FIG. 3B shows the CBC mode, which, after a 64-bit input data string is encrypted (or decoded) with the 64-bit key data 16 within the decoding section 7 (DES), once again feedback inputs this data into the decoding section 7 (DES). In this way, this consists of a method for outputting finished results, in which until all of the data has been completely inputted, feedback is performed; this method is suitable for data processing of files, etc.

FIG. 3C shows the OFB mode, which is suitable for sound data, etc., that can have a significant impact on other data if it contains only a single error, and communications data, which is highly susceptible to error.

FIG. 3D shows the CFB mode, which is suitable for self-synchronous data.

The previously mentioned mode identification section 18 analyzes data format, etc., and reads out the most suitable of these modes from the mode table 20, and sends this mode to the decoding section (DES). The decoding section 7 (DES) performs encryption/decoding processing based on the mode that is selected in this way.

Details of the Decoding Section

FIG. 4 is a block diagram showing the hardware configuration of the decoding section 7.

In the diagram, as the input buffer 21 of the input side, a 64-bit register (REG1) that consists of 8 connected registers, each with an 8-bit configuration, is placed, and on the next level selectors (sel) are placed. These selectors (sel) are made to input selectively either output from the DES processing main circuit 25 to be discussed below, or output from the previously mentioned shift register (REG1).

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Placed on the next level after the selectors (sel) is register 23 (REG2), each register of which has an 8-bit configuration, and placed on the next level is the DES processing main circuit 25. This DES processing main circuit 25 functions as the DES that is the core of the decoding section 7. In other words, within the DES processing main circuit 25 is registered as ROM (Read Only Memory) each type of DES mode explained with FIG. 3. This DES processing main circuit 25 is made to select the optimum DES mode logic through commands from the control CPU 4, and to perform decoding processing.

Output from the previously mentioned DES processing main circuit 25 branches out to the output register (REG3) that is the output buffer 24 and to the previously mentioned selectors (sel). Then, output from the output register (REG3) is used as either encrypted or decoded data.

The sequence of this processing is shown in FIG. 5.

In FIG. 5, output from the input register (the input buffer 21) undergoes DES processing as output from register 23 with the first clock of the next cycle. Then, it is outputted from the output register (the output buffer 24) with the next clock. At the time of output from this output register (the output buffer 24), within the input side is performed a take-in from the input register (the input buffer 21) of the encrypted data for the next cycle.

In this way, with the present preferred embodiment, through having provided independently the input register (REG1) as the input buffer 21 and the output register (REG3) as the output buffer 24, both inputting of encrypted data and outputting of decoded data may be performed continuously and independently. As a result, compared with existing DES where input and output is performed cyclically, high-speed encrypting/decoding processing has been made possible.

The decoding section 7 (DES) explained above is controlled by the control CPU 4; connected to the bus of this control CPU 4, besides the previously mentioned decoding section 7 (DES), is the monetary charges table 8, which is comprised of memory, and the interface 72 (I/O).

Within the monetary charges table 8 is registered a prescribed balance value, and monetary charge values are deducted according to the decoding processing amounts or processing time for encrypted software data.

In the case where one wants a balance value updated, as shown in FIG. 6 to be described below, a person brings the software management module 102 that is offered as a card medium to a sales store, etc., and by paying the fees, the person may have the balance value of the monetary charges table increased.

The interface 72 (I/O) is connected to the host CPU 10 exterior to the software management section 3. Furthermore, the previously mentioned CPU 4 can be made to work together with the host CPU 10 of the host apparatus (in other words, the software reproduction apparatus entity) side.

Output from the software management section 3 is output through the switchover switch 65 (SW4) to the sound-image separation section 66 (DE-MUX: demultiplexer), the image extension section 67a, and the sound extension section 76b (MPEG), etc., which comprise a portion of the data conversion section.

Image data separated from sound data with the sound-image separation section 66 (DE-MUX) is extended with the image extension section 67a (MPEG), converted with the DA conversion section 68a, and is outputted as NTSC signals to an analog display apparatus such as a TV display, etc.

Sound data is extended with the sound extension section 67b (MPEG), converted with the DA conversion section 68b, and outputted as audio signals to an analog audio apparatus such as a speaker, etc. Then, the synchronism of image and sound is controlled by the synchronism control section 70 (VCR).

With the present preferred embodiment, regardless of whether software is encrypted or is not encrypted, it can be uniformly reproduced.

Also, software data from different offering routes can also be manipulated uniformly; if, for example, software data obtained from a CD-ROM or software data obtained from a communications circuit is stored on a writable medium such as the optical magnetic disk 58, etc., through each type of switchover switch, usage and reproduction may be performed when required.

FIG. 2 as explained above is an example of a configuration case in which the CD-ROM 52, the communications circuit 51, and the optical magnetic disk 58 were handled uniformly; however, as shown in FIG. 7, data within a medium that is offered does not have to be encrypted—it may also have an access code given to it.

In other words, in FIG. 7, within a portion of the CD-ROM 76 is registered an access code (AC) for permitting access to this CD-ROM, and only in those cases where this access code (AC) matches a code stored within the apparatus is the usage (reproduction) of the software enabled.

In the diagram, the software management section 3 possesses an access code register 78, and within this access code register 78 is registered an access code for a prescribed medium 76 (or for the data within the medium).

This access code register 78 may be provided within the monetary charges table; in sum, this is a method whereby permission to reproduce is given only in those cases where reproducible software types, data names, etc., are previously registered, and where the medium 76 (CD-ROM or optical magnetic disk MO) on which the permitted data is registered is installed.

When the medium 76 is installed within the drive apparatus, and the data format is converted with the CD/MO demodulator device 60, and error processing has been executed with the magnetic disk/CD-system error processing section 63, the host CPU 10 first reads out an access code from this medium 76.

Next, the host CPU 10 accesses the access code register 78, and performs a retrieval within the key of the access code read out from the medium 76. As a result, in the case where this code was found to be registered within the access code register 78, the host CPU 10 operates the switchover switch 4 and outputs the software data from the medium 76.

With this example, since the data within the medium 76 is not encrypted, high-speed data processing is enabled.

An Overall Image of Software Distribution

FIG. 6 shows an overall view of software distribution as realized with the present invention.

Within the present preferred embodiment, software is shipped to the distribution route from a shipment center (here, for simplification, the management center and the shipment center are the same); however, the format at this time may be encrypted software stored on a CD-ROM, or it may be shipped over a communications route, or it may be shipped as an optical magnetic disk, etc.

The end user proceeds to the sales store 27, etc. (communications sales are also permissible), and purchases

the CD-ROM 52 as the software storage medium that stores the software. At the same time, the user also purchases an operating application disk 26 such as drive software, etc., that makes this software reproducible on the user's software reproduction apparatus 105, and an SD card that is the software management module (on which is stored the software management section 3 of the present preferred embodiment)

Here, even though the CD-ROM stores multiple software, since this is not a sales method whereby this CD-ROM 52 is to be sold out, the sales price of the CD-ROM itself may be set at a low price. Also, the sales store 27 may also be a rental store.

In other words, within the present invention, all of the software data stored on the CD-ROM 52 is encrypted, and in the case where this data is decoded and reproduced, it is essential that the SD card 102 that maintains a high level of security be used. Also, as will be discussed below, a charge collection system corresponding to the amount of software used is put fully into place. Furthermore, even if the encrypted data stored on the CD-ROM itself is copied onto a separate medium (for example, the optical magnetic disk 58), this alone is meaningless; and even if the CD-ROM is rented, if a charge collection system that corresponds to the amount of software used is fully in place, there will be no decline in the profits of the software provider.

The end user, in the case where he or she desires to reproduce the software stored on this CD-ROM 52 within his or her own software reproduction apparatus 105, first inserts the SD card 102 into the card drive apparatus 28. Then, the user loads both the CD-ROM 52 and the operating application disk 26 into the software reproduction apparatus 105.

Then, the user starts up the communications application (this communications application may also be provided as an operating application) inserted within the software reproduction apparatus 105, and sends from the modem 73 through the home telephone unit 30 a software usage request to the management center 31. In response, the management center 31 encrypts a consent command (key data) for this user and sends it to the software reproduction apparatus 105.

Furthermore, this usage request and usage consent may also take the format of the end user verbally communicating the code with an operator.

The software reproduction apparatus that has received the previously mentioned consent command reads the CD-ROM 52, sequentially decodes the required software through the decoding section 7 (DES) of the SD card, and transmits this software to the program storage area (memory) of the software reproduction apparatus 105.

Along with this, the control CPU 4 counts either the decoded data amount or the decode time for this software, and deducts a monetary charges balance value from the monetary charges table 8. Then, until the monetary charges balance value becomes "0", the control CPU 4 continues decoding processing of decrypted software data.

Here, in the case where the monetary charges balance value of the monetary charges table becomes "0", the control CPU 4 terminates output of encrypted software data. Furthermore, prior to or following termination of output of software data, the user may be warned through image or sound data of a monetary charges balance insufficiency.

What is claimed is:

1. A software reproduction apparatus for reproducing encrypted or non-encrypted software data received via an input route including a storage medium and by communi-

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cations with a remote source, and for executing monetary charges according to the usage of the software comprising:

signal processing means for performing unique signal processing based on the input route of the software data; and

error processing means for conducting error processing based on the input route;

input switchover means for selecting an input route, said input switchover means comprising:

first switchover means for outputting encrypted and non-encrypted software data to said signal processing means and;

second switchover means for receiving the output from said signal processing means and directing the output of said signal processing means to said error processing means;

software management means for decoding encrypted software data and for managing monetary charges according to the usage of the software data;

data conversion means for converting decoded data outputted from said software management means to output data offered to the user; and

output route switchover means for receiving encrypted data from said input switchover means and outputting the encrypted data to said software management means, and for receiving non-encrypted software data from said input switchover means and outputting the non-encrypted software data to said data conversion section.

2. The software reproduction apparatus of claim 1 further comprising:

drive apparatus for installing a writable medium;

writing means for writing on to said medium encrypted software data obtained from the said input route prior to its output to said software management means; and
a means for reading encrypted software data written on said medium.

3. The software reproduction apparatus of claim 1 wherein said error processing means is equipped with an error check code generation section for generating new error check codes corresponding to the said writable medium.

4. A software reproduction apparatus for reproducing encrypted or non-encrypted software data received via an input route including a writable medium, a non-writable medium and by communications with a remote source, and for executing monetary charges according to the usage of the software, the software reproduction apparatus comprising:

input switchover means for selecting an input route;

software management means for decoding encrypted software data using key data from an external source and for managing monetary charges according to the usage of the software data;

data conversion means for converting decoded data outputted from said software management means to output data offered to the user; and

output route switchover means for receiving encrypted data from said input switchover means and outputting the encrypted data to said software management means, for receiving the non-encrypted software data from said input switchover means and outputting the non-encrypted software data to said data conversion means, and for outputting the encrypted software data to a writable medium.

5. The software reproduction apparatus of claim 4 further comprising:

error management means equipped with an error check code generation section for generating new error check codes corresponding to the writable medium.

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6. A software reproduction apparatus for reproducing encrypted or non-encrypted software data received via an input route including a storage medium and by communications with a remote source, and for executing monetary charges according to the usage of the software comprising:

input switchover means for selecting an input route according to the type of medium or communications;

software management means for decoding encrypted software data and for managing monetary charges according to the usage of the software data;

data conversion means for converting decoded data outputted from said software management means to output data for the user;

output route switchover means for receiving encrypted data from said input switchover means and outputting the encrypted data to said software management means, and for receiving non-encrypted software data from said input switchover means and outputting the non-encrypted software data for said data conversion section;

drive apparatus for installing a writable medium;

writing means for writing, on said medium, encrypted software data obtained from the said input route prior to the output of the encrypted software data to said software management means; and

a means for reading encrypted software data written on said medium.

7. A software reproduction apparatus for reproducing encrypted or non-encrypted software data received via an input route including a storage medium and by communications with a remote source, and for executing monetary charges according to the usage of the software comprising:

signal processing means for performing unique signal processing based on the input route of the software data; and

error processing means for conducting error processing based on the input route;

input switchover means for selecting an input route, said input switchover means comprising:

first switchover means for outputting encrypted and non-encrypted software data to said signal processing means and;

second switchover means for receiving the output from said signal processing means and directing the output of said signal processing means to said error processing means;

software management means for decoding encrypted software data and for managing monetary charges according to the usage of the software data;

data conversion means for converting decoded data outputted from said software management means to output data offered to the user;

output route switchover means for receiving encrypted data from said input switchover means and outputting the encrypted data to said software management means, and for receiving non-encrypted software data from said input switchover means and outputting the non-encrypted software data to said data conversion section;

drive apparatus for installing a writable medium;

writing means for writing on said writable medium encrypted software data obtained from the said input route prior to its output to said software management means; and

a means for reading encrypted software data written on said medium.

* * * * *

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8. An apparatus comprising:
digital information receiving means for
receiving digital information provided via a
communication medium;
drive means for reading digital information
from, and writing digital information to, a
removable storage medium;
information converting means for
converting digital information received by said
digital information receiving means and digital
information read by said drive means into at least
one of the group consisting of visible and audible
data; and
switch means for controlling a connection
between said digital information receiving means
and said information converting means, between
said digital information receiving means and said
drive means, and between said drive means and
said information converting means.

9. The apparatus according to claim 8,
further comprising:
deciphering means
for deciphering digital information
received by said digital information receiving
means when the digital information is ciphered,
and for providing the deciphered digital
information to said information converting means
for converting, and
for deciphering digital information
read by said drive means when the digital
information is ciphered, and for providing the
deciphered digital information to said information
converting means for converting.

10. The apparatus according to claim 9,
further comprising:
billing managing means
for managing billing based on a
utilization of the digital information received by
said digital information receiving means, and
for managing billing based on a
utilization of the digital information read by said
drive means.

11. The apparatus according to claim 8,
wherein said information converting means
comprises:

extension means

for extending digital information
received by said digital information receiving
means when said digital information is
compressed, and

for extending said digital
information read by said drive means when said
digital information is compressed.

12. An apparatus comprising:
a digital information receiver receiving
digital information provided via a communication
medium;

a drive device reading digital information
from, and writing information to, a removable
storage medium;

a converter converting digital information
received by said digital information receiver and
digital information read by said drive device into at
least one of the group consisting of visible and
audible data; and

a switch controlling a connection between
said digital information receiver and said converter,
between said digital information receiver and said
drive device, and between said drive device and said
converter.

13. The apparatus according to claim 12,
further comprising:

a deciphering device

deciphering digital information
received by said digital information receiver when
the digital information is ciphered, and providing
the deciphered digital information to said converter,
and

deciphering digital information read
by said drive device when the digital information is
ciphered, and providing the deciphered digital
information to said converter.

14. The apparatus according to claim 13,
further comprising:

a billing manager
managing billing based on a
utilization of the digital information received by
said digital information receiver, and
managing billing based on a
utilization of the digital information read by said
drive device.

15. The apparatus according to claim 12,
wherein said converter comprises:

an extender
extending digital information
received by said digital information receiver when
said digital information is compressed, and
extending said digital information
read by said drive device when said digital
information is compressed.

16. An apparatus comprising:
a communication path providing digital data;
a storage medium storing digital data;
a converter converting digital data into at
least one of the group consisting of visible and
audible data; and

a switch having
a first switch position which
connects digital data provided by the
communication path to the converter so that the
converter converts the digital data into at least one
of the group consisting of visible and audible data,

a second switch position which
connects digital data read from the storage medium
to the converter so that the converter converts the
digital data read from the storage medium into at
least one of the group consisting of visible and
audible data, and

a third switch position which
connects digital data provided by the
communication path to the storage medium so that
the digital data provided via the communication
path is stored in the storage medium.

17. The apparatus according to claim 16,
further comprising:

a deciphering device which,

when the switch is in the first switch position and the digital data provided by the communication path is ciphered, deciphers the digital data before the digital data is provided to the converter, so that the converter receives and converts the deciphered digital data, and,

when the switch is in the second position and the digital data read from the storage medium is ciphered, deciphers the digital data read from the storage medium before the digital data is provided to the converter, so that the converter receives and converts the deciphered digital data.

18. The apparatus according to claim 16, further comprising:

a billing manager managing billing based on a utilization of digital data provided by the communication path, and managing billing based on a utilization of digital data read from the storage medium.

19. The apparatus according to claim 16, wherein the converter comprises:

an extender extending digital data provided by the communication path when the digital data is compressed, and extending digital data read from the storage medium when digital data is compressed.

20. An apparatus comprising:
a communication path providing digital data;
a storage medium storing digital data;
a converter converting digital data into at least one of the group consisting of visible and audible data;

a decoder decoding encrypted digital data;
and

a switch having
a first switch configuration which, when non-encrypted digital data is provided by the communication path, connects the digital information provided by the communication path to the converter without passing through the decoder so that the converter converts the digital data into at least one of the group consisting of visible and

audible data.

a second switch configuration which, when encrypted digital data is provided by the communication path, connects the digital information provided by the communication path to the converter and the decoder so that the encrypted digital data is decoded by the decoder and then the decoded digital data is converted by the converter into at least one of the group consisting of visible and audible data.

a third switch configuration which, when non-encrypted digital data is read from the storage medium, connects the digital data read from the storage medium to the converter without passing through the decoder so that the converter converts the digital data into at least one of the group consisting of visible and audible data.

a fourth switch configuration which, when encrypted digital data is read from the storage medium, connects the digital data read from the storage medium to the converter and the decoder so that the encrypted digital data is decoded by the decoder and then the decoded digital data is converted by the converter into at least one of the group consisting of visible and audible data, and

a fifth switch configuration which connects the digital data provided by the communication path to the storage medium so that the digital data provided via the communication path is stored in the storage medium.

21. A switch comprising:

a first switch position which connects digital data provided by a communication path to a converter that converts converts the digital data into at least one of the group consisting of visible and audible data;

a second switch position which connects digital data read from a storage medium to the converter so that the converter converts the digital data read from the storage medium into at least one of the group consisting of visible and audible data; and

a third switch position which connects the digital data provided by the communication path to

the storage medium so that the digital data provided via the communication path is stored in the storage medium.

22. An apparatus comprising:

a first means which connects digital data provided by a communication path to a converter that converts the digital data into at least one of the group consisting of visible and audible data;

a second means which connects digital data read from a storage medium to the converter so that the converter converts the digital data read from the storage medium into at least one of the group consisting of visible and audible data; and

a third means which connects the digital data provided by the communication path to the storage medium so that the digital data provided via the communication path is stored in the storage medium.

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[57]

ABSTRACT

This invention provides an input switchover means for switching input routes according to the type of medium or communications, a software management means for decoding encrypted software information and for managing monetary charges according to the usage amounts of this software, an information conversion section for converting decoded data outputted from the previously mentioned software management means to visible or audible data, and an output route switchover means for outputting to the previously mentioned software management means encrypted software data, and for outputting to the previously mentioned information conversion section non-encrypted software information.

FIG. 3 A

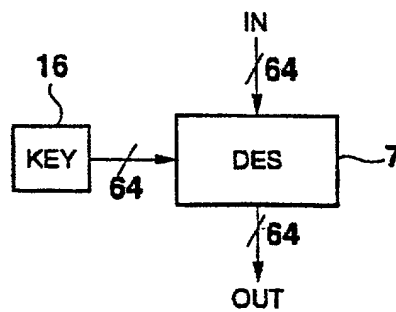


FIG. 3 B

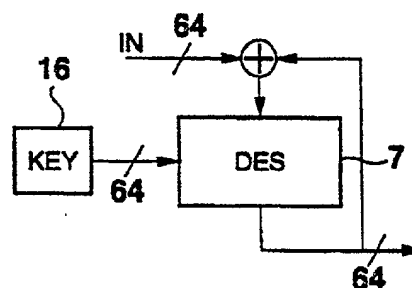


FIG. 3 C

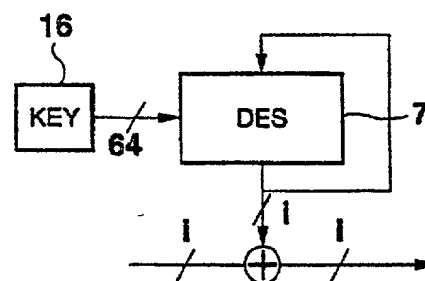


FIG. 3 D

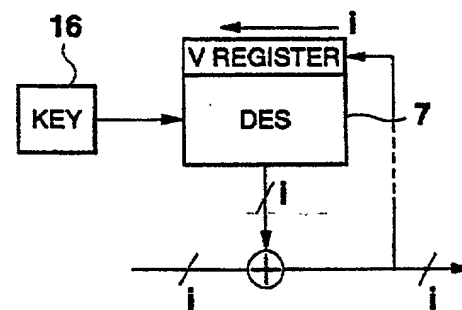


FIG. 5

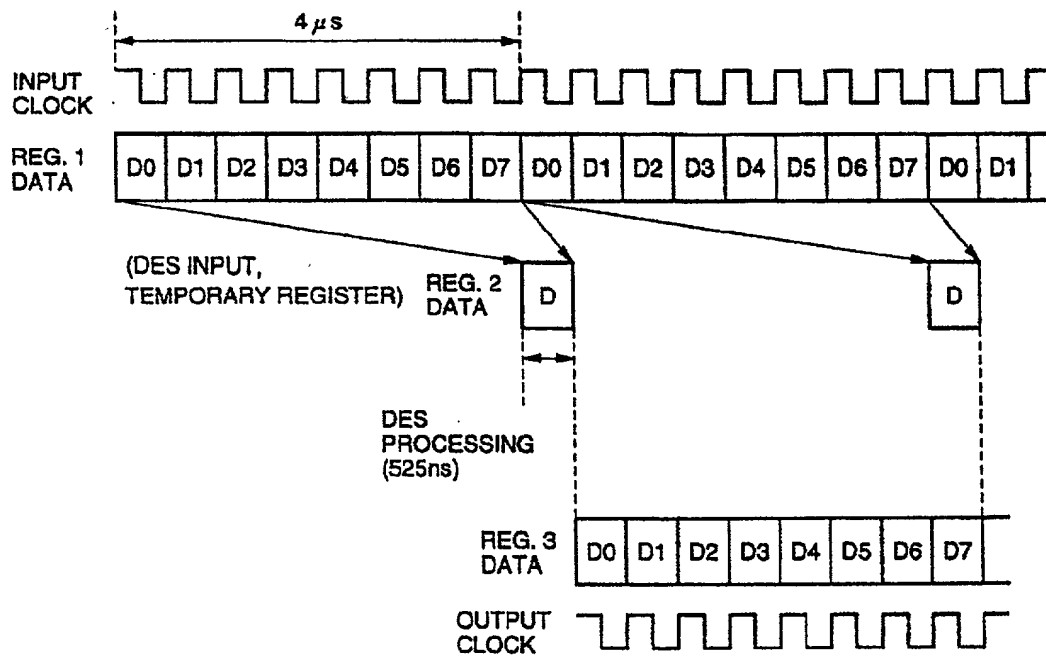


FIG. 6

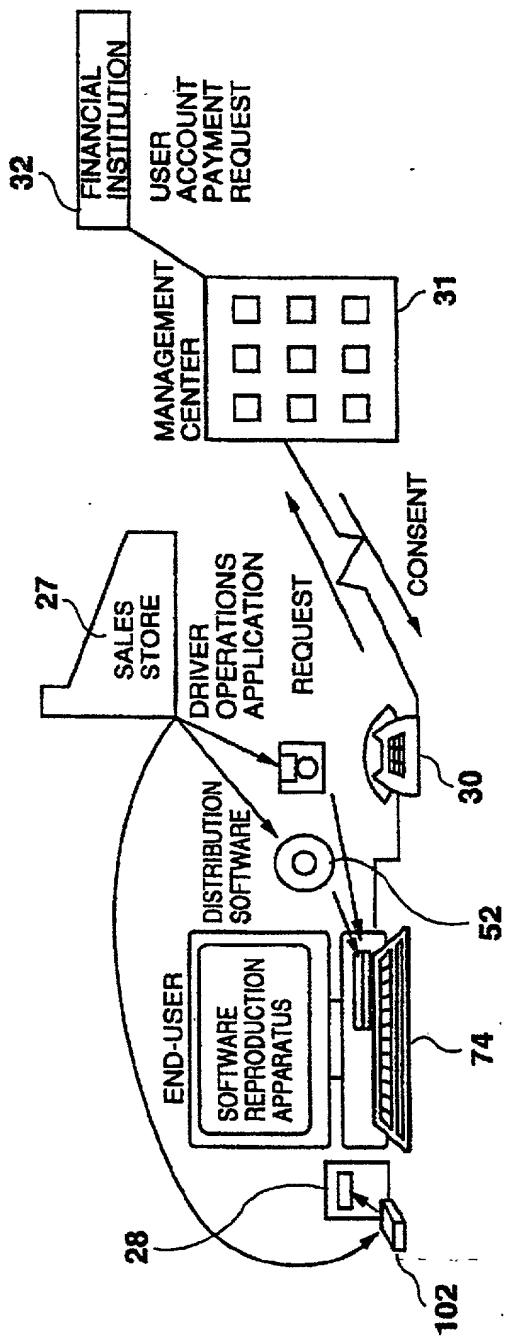
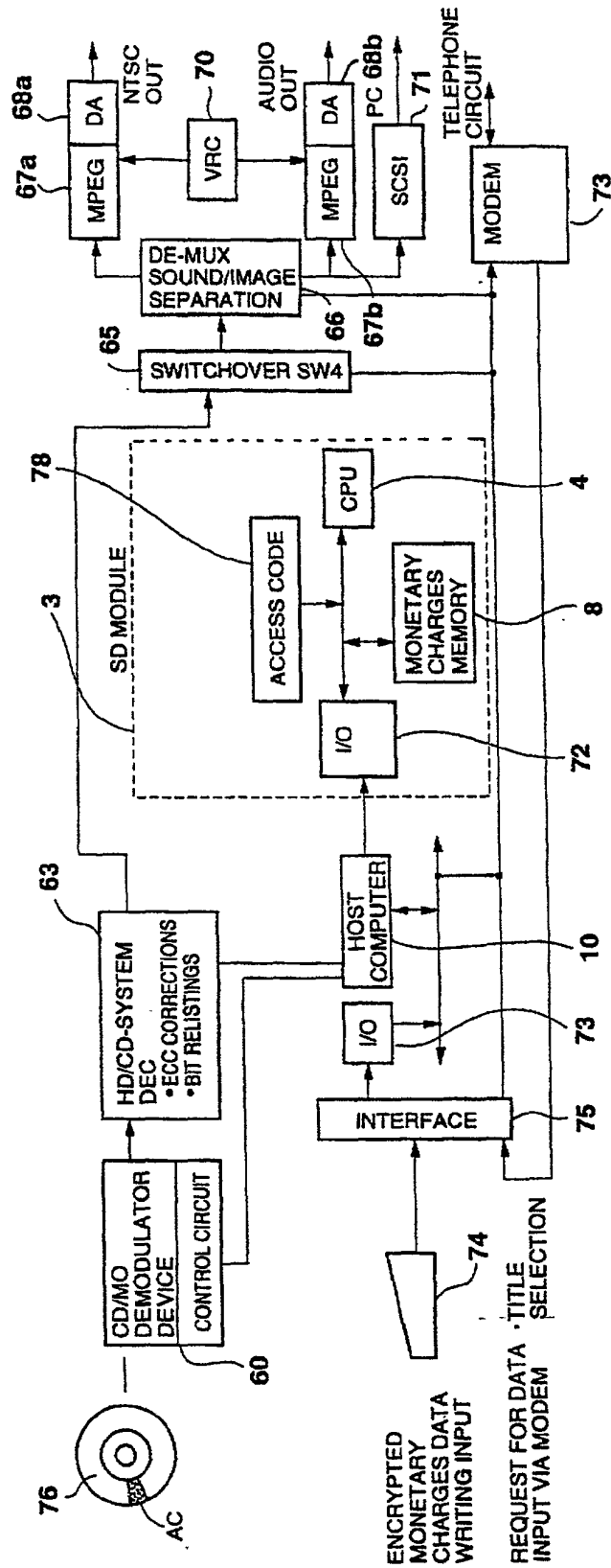


FIG. 7



In re Reissue Application of:

Group Art Unit: Unassigned

Examiner: Unassigned

For: SOFTWARE REPRODUCTION APPARATUS

Assistant Commissioner for Patents
Washington, D. C. 20231

We, Ryota AKIYAMA and Makoto YOSHIOKA, declare that:

1. Our residence, post office address and citizenship are as stated below next to our respective names.

2. We believe we are the original, first inventors of the subject matter which is described and claimed in U.S. Letters Patent No. 5,812,661 ("the '661 patent") issued on September 22, 1998, and for which invention we solicit a reissue patent on the invention entitled SOFTWARE REPRODUCTION APPARATUS, the specification of which is attached hereto.

3. We hereby state that we have reviewed and understand the contents of the above-identified specification, including the claims, as amended in the attached reissue application.

REISSUE APPLICATION DECLARATION

Docket No.: 1046.1100RE

4. We acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information known to us which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

5. We hereby claim foreign priority benefit under Title 35, United States Code, Section 119, of Japanese Patent Application No. 6-219364, filed August 10, 1994. There are no other foreign applications for patent or inventor's certificate having a filing date before Japanese Patent Application Number 6-219364 on which priority is claimed.

6. We believe the original '661 patent to be wholly or partly inoperative or invalid by reason of claiming more or less than we had the right to claim in the patent.

7. With respect to broadening the claims, an error being relied upon as the basis for the reissue is that each of allowed claims 1-7 recite an "input switchover means" and an "output switchover means." Applicants submit that the detailed recitation of the "input switchover means" and the "output switchover means" in all the claims too narrowly defines the scope of the invention.

8. All errors being corrected in the reissue application up to the time of filing of this reissue declaration arose without any deceptive intention on the part of the applicants.

9. We hereby appoint the following attorneys and/or agents to prosecute this application and transact all business in the Patent and Trademark Office in connection therewith.

REISSUE APPLICATION DECLARATION

Docket No.: 1046.1100RE

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10. We hereby declare that all statements made herein of our own knowledge are true, that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

REISSUE APPLICATION DECLARATION

Docket No.: 1046.1100RE

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